

ABSTRACT

A light-emitting chip mounted on a leadframe has a light-emitting surface substantially orthogonal to an optical grating surface of a scale and in a direction of an optical grating. A transparent resin is molded so that it seals both the light-emitting chip and the leadframe. A first optical element reflects the light from the light-emitting chip substantially parallel to the optical grating surface and in a direction orthogonal to the direction of the optical grating. A second optical element reflects the parallel light from the first optical element and illuminates the optical grating over a specified area in the direction of the optical grating as the reflected parallel light is converged toward the optical grating.